

Appl. No. 10/075,360
Arndt. Date: Nov. 14, 2003
Reply to Office Action of August 20, 2003

REMARKS

Claims 1, 9 and 15 have been amended. Claim 3 and claim 4 have been cancelled without prejudice. Claims 1-2 and 5-15 remain pending in the application.

Claim Rejections Under 35 U.S.C. 103(a)

Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mangrulkar in view of Gupta et al. Applicants respectfully traverse and submit that the pending claims, as amended, are allowable under 35 U.S.C. 103(a) over Mangrulkar in view of Gupta et al.

Specifically, claim 1, as amended, recites as follows:

Claim 1 (currently amended): A system for monitoring machines operating at at least one shop floor, the system comprising:

a plurality of information collectors, each information collector linked to a corresponding machine for automatically *obtaining specific machine-related signals* and converting the machine-related signals into computer-readable information;

a monitoring computer pre-installed with programmable information obtaining instructions and electrically connected to the information collectors for obtaining the computer-readable information from the information collectors;

a database electrically connected to the monitoring computer for storing the computer-readable information collected by the monitoring computer and for storing fundamental data set by users; and

a graphical user interface electrically connected to the database for users to monitor production information (*emphasis added*).

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Mangrulkar does not disclose the limitations as highlighted above in claim 1. Specifically, claim 1 comprises a plurality of information collectors for automatically *obtaining specific machine-related signals*. Such specific machine-related signals include machine status, die status and current production information. By contrast, Mangrulkar discloses a system/method for monitoring the operation of a machine having a traversing tool or die member by utilizing a plurality of variables extracted from a process signature. The system comprises means for *collecting a set of production process signatures*. The signatures may not be specific, and may include all signals occurring in the production process. The system further provides means for *defining a plurality of features based on the set of production process signatures*. The defined features may comprise machine status, die status, and other related production information. There is no suggestion or disclosure that the plurality of features are related or equivalent to the machine-related signals specified in claim 1.

Moreover, as Examiner states, Gupta et al. teaches a database electrically connected to the monitoring computer for storing the computer-readable information collected by the monitoring computer and for storing fundamental data set by users and a graphical user interface, which has icons for viewing the machines and viewing real-time information on the machines or on dies, electrically connected to the database for users to monitor production information. However, Gupta et al.

Thus, it is submitted that claim also does not teach information collectors for automatically obtaining specific machine-related signals, nor a monitoring computer with pre-installed information obtaining instructions for obtaining the specific machine-related signals after their conversion to computer-readable information. 1 is allowable under 35 U.S.C. 103(a) over Mangrulkar in view of Gupta et al. Claim 2 and claims 5-8 depend directly from claim 1 and incorporate more features therein. Accordingly, it is

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submitted that these claims are also unobvious over the cited references and in a condition for allowance.

Claim 9 is an independent method claim paralleling the features of amended claim 1, and claims 10-14 depend directly from claim 9. Therefore, these claims should also be allowable.

Regarding claim 15, this recites a procedure of operating a system for monitoring machines operating at at least one shop floor comprises in sequence the steps of:

logging into the system;

setting fundamental data;

storing the data and outputting a corresponding report and ending this procedure, or further selecting real-time information;

storing the data and the information and outputting a corresponding report and ending this procedure, or further inquiring of desired information;

verifying normality of the information and the data by comparing the information with pre-set standard criteria and thresholds;

inquiring of historical records of reasons for abnormalities if abnormal, or directly checking whether a schedule change is desired if normal;

analyzing reasons according to the historical records of reasons for abnormalities if abnormal;

if abnormal, storing the information, the data and the reasons for future reference and outputting a corresponding report and ending the procedure, or checking whether a schedule change is desired;

ending the procedure if no schedule change is desired;

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determining whether to manually input information of a schedule change if a schedule change is desired;

manually inputting and storing the information and outputting a corresponding report and ending the procedure if manual input is desired, or selecting and storing standard schedule if manual input is undesired; and

outputting a report reflecting corresponding information and ending the procedure.

In fact, the Mangrulkar reference does disclose a procedure of *verifying normality of information by comparing feature data with baseline data*. The baseline data are obtained by collecting a set of baseline process signatures, and then establishing operating limits associated with each of the features based on the set of baseline process signatures. However, there is no disclosure nor suggestion of a procedure of *verifying normality of information by comparing the information with pre-set standard criteria and thresholds*. The pre-set standard criteria and thresholds are not equitable with baseline data, because the baseline data are collected while a machine is operating and producing a predetermined number of baseline parts, whereas the pre-set standard criteria and thresholds are fixed in advance by users such as production managers (see p.6 para. [0017] lines 14-16 therein).

In addition, claim 15 discloses a procedure of *analyzing reasons according to the historical records of reasons for abnormalities* in order to control subsequent processes when abnormality occurs. *Reasons for current abnormality can be used for future reference*. However, Mangrulkar merely detects an out-of-control process or the formation of unacceptable parts *based on the comparison of the feature data to the baseline data* for the purposes of process control.

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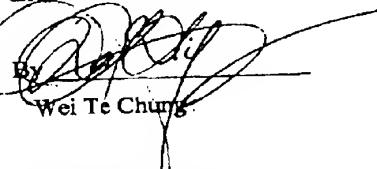
Moreover, claim 15 recites *changing of a schedule* when an abnormality occurs. This includes changing a current production schedule or rescheduling production (see p.9 para. [0022] lines 17-18 therein). This can be done by manually inputting schedules or by selecting standard schedules (see p.9 para. [0022] lines 20-21 therein and p.10 para. [0022] lines 1-5 therein). Mangrulkar indicates a procedure of controlling operation of the machine upon detecting the formation of the unacceptable parts, but does not teach or suggest how to control operation of the machine.

Gupta et al. does not disclose or suggest any specifics regarding the distinguishing features of claim 15 as described above. Thus, it is submitted that claim 15 is allowable over the cited prior art.

In view of the above claim amendments and remarks, the subject application is believed to be in a condition for allowance and an action to such effect is earnestly solicited.

Respectfully submitted,

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